



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/539,993	02/09/2006	Pertti Paakkonen	43289-219271	8325
26694	7590	12/31/2009	EXAMINER	
VENABLE LLP P.O. BOX 34385 WASHINGTON, DC 20043-9998			CALLAWAY, JADE R	
			ART UNIT	PAPER NUMBER
			2872	
			MAIL DATE	DELIVERY MODE
			12/31/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/539,993

Applicant(s)

PAAKKONEN ET AL.

Examiner

JADE R. CALLAWAY

Art Unit

2872

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/15/09, 10/8/09.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-28, 30-38, 40-44 and 46-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-28, 30-38, 40-44 and 46-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/8/09
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/15/09 has been entered.

Response to Amendment

2. The amendments to the claims, in the submission dated 12/15/09, are acknowledged and accepted.

Response to Arguments

3. Applicant's arguments filed 12/15/09 have been fully considered but they are not persuasive. Applicants argue that the prior art cited does not teach or disclose "an embossed structure on the surface of a non-transparent substrate without a protective layer." The Examiner respectfully disagrees. The Examiner notes that the rejection is under 35 U.S.C. 103 and not 35 U.S.C. 102 and that the Examiner is relying on the combination of the reference to teach the limitations as currently claimed. Further, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In this instance, Lovison discloses an embossed structure (e.g. a textured layer) on the surface of a non-transparent substrate (e.g. a layer of opaque ink can be

deposited on the substrate) without a protective layer [col. 2, lines 9-23, 48-68, col. 3, lines 1-24]. Additionally, Lovison discloses in figure 3 that the top of the holographic film (14) is not protected by a protective layer when viewed from the rear. The claims do not specify which surface is intended to be the "top" surface. As such, the Examiner broadly and reasonably interprets the "top" surface of Lovison to be the "top" surface as viewed from the rear.

Claim Objections

4. Claim 30 is objected to because of the following reasons: Claim 30 as presently presented is dependent on claim 29, a cancelled claim. For purposes of examination claim 30 will be interpreted to depend on claim 26. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 26-28, 30-38, 40-44, 46-53, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Wood et al. (5,142,384) in view of Lovison (5,223,357).

Consider claims 26, 33 and 40, Wood et al. disclose (e.g. figures 1-4) a method and product comprising at least one pattern area formed of a pure grid structure produced on a substrate, the grid structure is arranged to produce for a viewer a holographic or a corresponding visual effect (produces a hologram) by diffracting light in

one or more diffraction orders, each diffraction order corresponding to a certain observing direction (viewing angle) of the visual effect observable at a visible wavelength, and the grid structure is arranged to leave a free range of angles such that the grid structure when examined from directions corresponding to the range of angles does not produce for the viewer a clearly observable effect based on diffraction (hologram is only viewable at the viewing angle), the ratio of the grid period of the grid structure to the visible wavelength being smaller than 5, and the grid structure being implemented on a substrate without a reflective metal on the substrate (ratio is satisfied when $m=1$, $\lambda=633$ nm, $\theta_m=0^\circ$, and for values within the range of $5^\circ < \theta_i < 20^\circ$) [col. 2, lines 45-68; col. 3, lines 1-68; col. 8, lines 1-4]. However, Wood et al. do not disclose that the substrate is not transparent or that the grid structure is an embossed pure grid structure that is not protected with a protective layer. Wood et al. and Lovison are related as holographic displays. Lovison teaches (e.g. figures 1-3) a non-transparent substrate (the substrate can include a layer of opaque ink) including an embossed pure grid structure (textured) wherein the top of the grid structure (when viewed from the rear) is not protected with a protective layer [col. 2, lines 9-23, 48-68, col. 3, lines 1-24]. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the device of Wood et al., as taught by Lovison, in order to reduce the time and layers/materials needed to produce the holographic device, thereby reducing cost and increasing the amount of devices that can be made in a given amount of time.

Consider claim 27 and 34, the modified Wood et al. reference discloses (e.g. figures 1-4) a grid structure wherein the grid structure is arranged to direct the light

diffracted therefrom in only one diffraction order [col. 2, lines 45-68; col. 3, lines 1-68 of Wood et al.].

Consider claims 28 and 35, the modified Wood et al. reference discloses (e.g. figures 1-4) a grid structure wherein the free range of angles is at least 10° [col. 2, lines 45-68; col. 3, lines 1-68 of Wood et al.].

Consider claims 31 and 42, the modified Wood et al. reference discloses a grid structure produced on cardboard [col. 3, lines 3-15 of Wood et al.].

Consider claim 32, the modified Wood et al. reference discloses a grid structure wherein the substrate comprises at least one dielectric thin film coating on the entire surface area of the substrate or only at the locations corresponding to the grid structure [col. 4, lines 58-68; col. 5, lines 1-8 of Wood et al.].

Consider claim 36, the modified Wood et al. reference discloses a grid structure wherein the diffraction efficiency to the one or more observing directions is modified by the selection of the parameters of the grid structure (the characteristics or parameters of the grid structure impact or modify the efficiency to one or more observing directions).

Consider claim 43, the modified Wood et al. reference discloses (e.g. figures 1-4) a product that is of a packing material (cardboard) [col. 3, lines 3-15 of Wood et al.].

Consider claim 44, Wood et al. teach (e.g. figures 1-4) a product that is a printed product [col. 3, lines 3-41 of Wood et al.].

Consider claim 46, the modified Wood et al. reference discloses (e.g. figures 1-4) a product wherein the basic material of the product at the same time acts as the substrate of the grid structure [col. 3, lines 3-41 of Wood et al.].

Consider claim 47, the modified Wood et al. reference discloses (e.g. figures 1-4) a product wherein the product comprises several pattern areas, at least two of the pattern areas have different observing directions and/or design wavelengths [col. 6, lines 9-13 of Wood et al.].

Consider claims 48-49, the modified Wood et al. reference discloses (e.g. figures 1-4) a product wherein the pattern area forms a trademark, a logo, a product description, or text [col. 3, lines 34-53 of Wood et al.].

Consider claim 50, the modified Wood et al. reference discloses (e.g. figures 1-4) a product wherein the product comprises several adjacent pattern areas that are similar to each other and that are arranged to form a larger area with a substantially uniform visual effect [col. 3, lines 34-53 of Wood et al.].

Consider claims 30 and 41, the modified Wood et al. reference discloses (e.g. figures 1-4) a grid structure with a substantially transparent substrate [col. 3, lines 5-15 of Wood et al.]. However, the modified Wood et al. reference does not disclose that the substrate is made of plastic or lacquer. Note that the Court has held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination; see **Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945)**. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select a plastic for the substantially transparent substrate of the modified Wood et al. reference since plastics are easily available, durable and cost effective.

Consider claim 37, the modified Wood et al. reference does not disclose that the width of the grid profile is selected to be substantially half of the grid period. Note that

the Court has held that mere scaling up or down of a prior art process capable of being scaled up or down would not establish patentability of a claim in an old process so scaled; see **In re Reinhart**, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the grid profile of the modified Wood et al. reference to have the width be substantially half of the grid profile in order to maximize the viewing potential of a hologram.

Consider claim 38, the modified Wood et al. reference does not disclose that one quarter of the value of the wavelength is selected as the value of the height of the grid profile. Note that the Court has held that mere scaling up or down of a prior art process capable of being scaled up or down would not establish patentability of a claim in an old process so scaled; see **In re Reinhart**, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the grid profile of the modified Wood et al. reference to have one quarter of the value of the wavelength be the value of the height of the grid profile in order to maximize the viewing potential of a hologram.

Consider claims 51-53, the modified Wood et al. reference discloses a grid structure wherein the grid structure has a substantially binary grid profile. The textured surface of Lovison will have peaks and valleys giving the structure a "substantially" binary grid profile [col. 2, lines 9-23, 48-68, col. 3, lines 1-24].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JADE R. CALLAWAY whose telephone number is

(571)272-8199. The examiner can normally be reached on Monday to Friday 6:00 am - 3:30 pm est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRC
/JADE R. CALLAWAY/
Examiner, Art Unit 2872

/Amel C. Lavarias/
Primary Examiner, Art Unit 2872